21 KONFERENCE ČESKÉ ASOCIACE AKUTNÍ KARDIOLOGIE

3.–5. 12. 2023 | HOTEL THERMAL, KARLOVY VARY

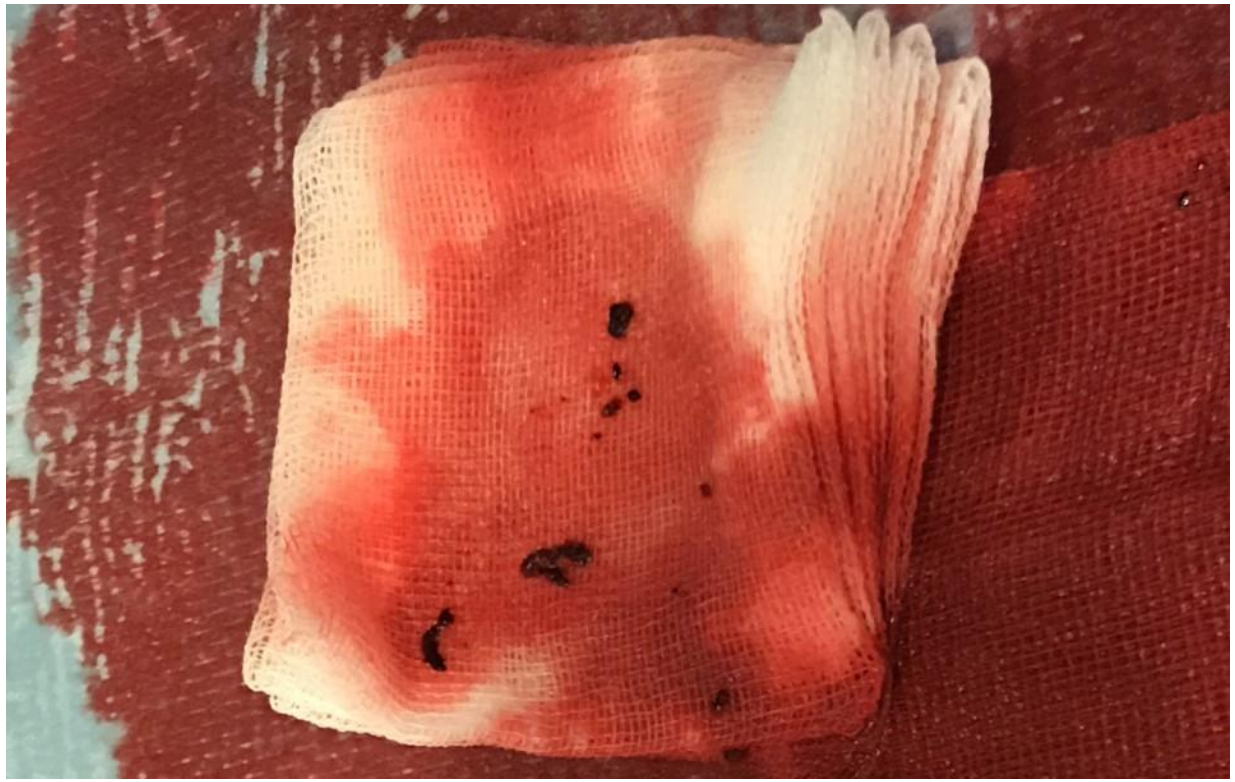
Revaskularizace u STEMI

Tomáš Kovárník

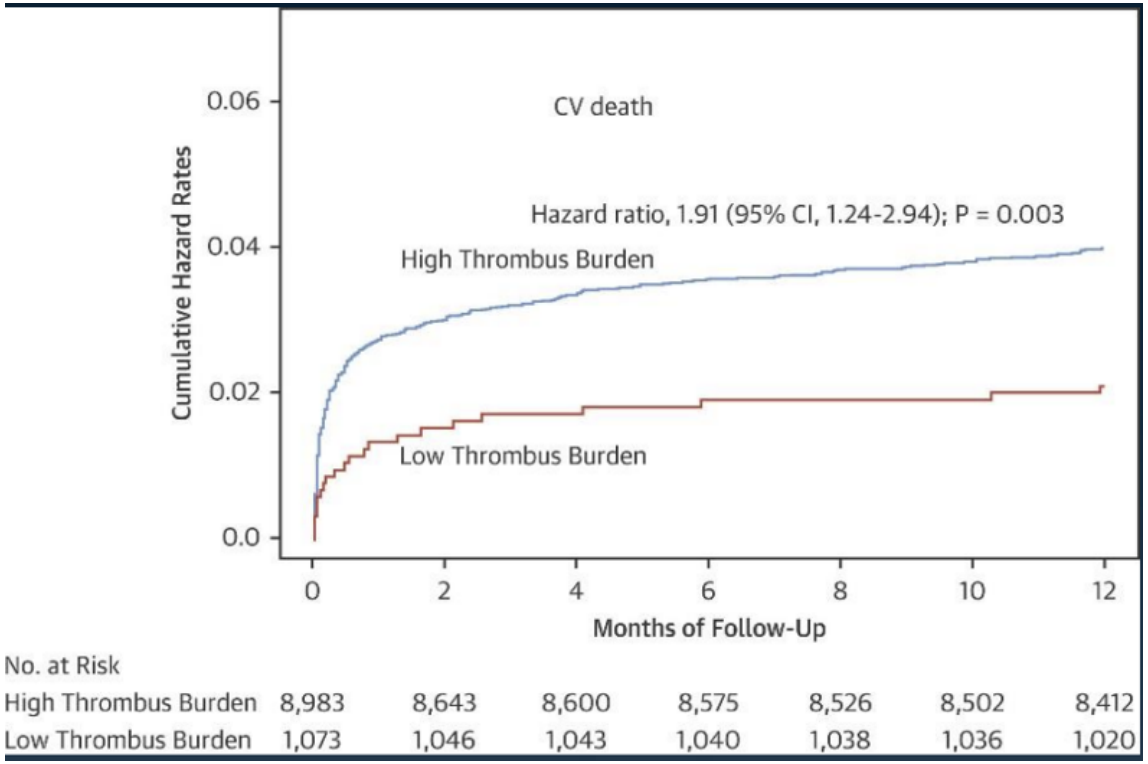
- II. interní klinika VFN a 1. LF UK v Praze

Aspirační trombektomie

The routine use of thrombus aspiration is not recommended.[472–474]	III	A



Zdroj: archiv autora



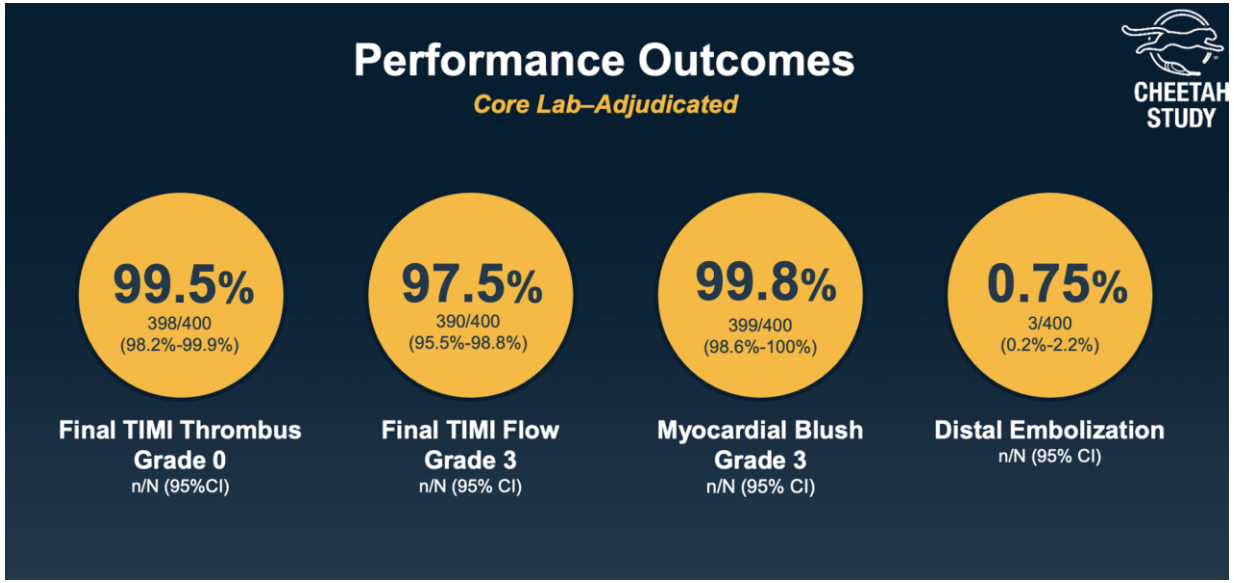
Jolly SS. JACC 2018;72:1589-96

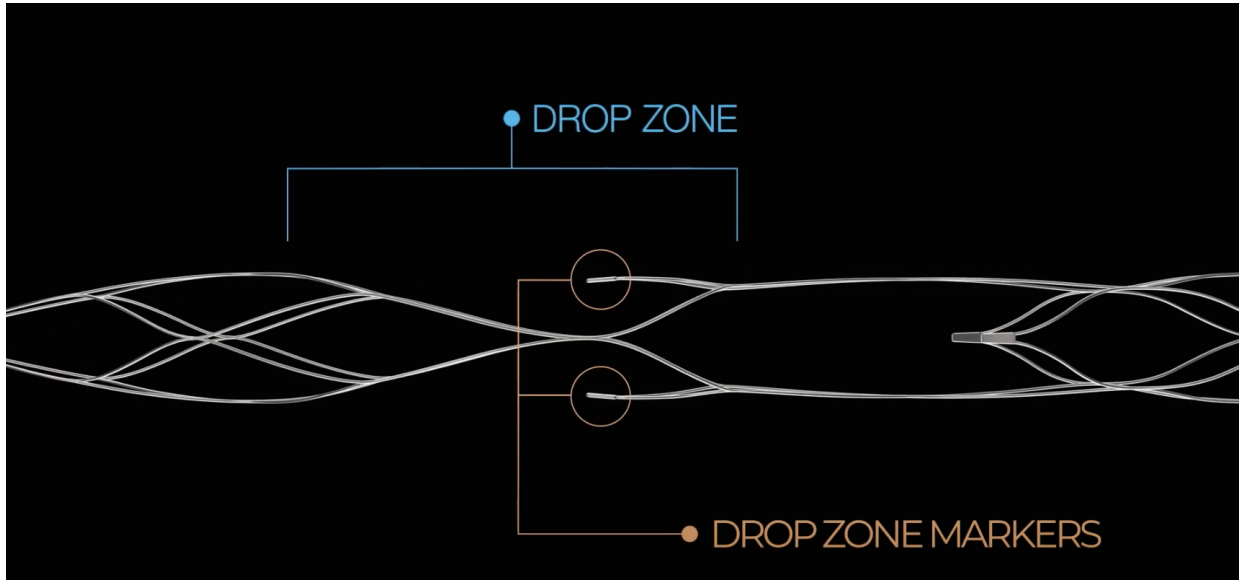
Circulation: Cardiovascular Interventions

ORIGINAL ARTICLE

Sustained Mechanical Aspiration Thrombectomy for High Thrombus Burden Coronary Vessel Occlusion: The Multicenter CHEETAH Study

S. Jay Mathews, MD, MS; Sahil A. Parikh, MD; Willis Wu, MD; D. Christopher Metzger, MD; Jeffrey W. Chambers, MD;





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Circulation CVI 2023;16:e112433

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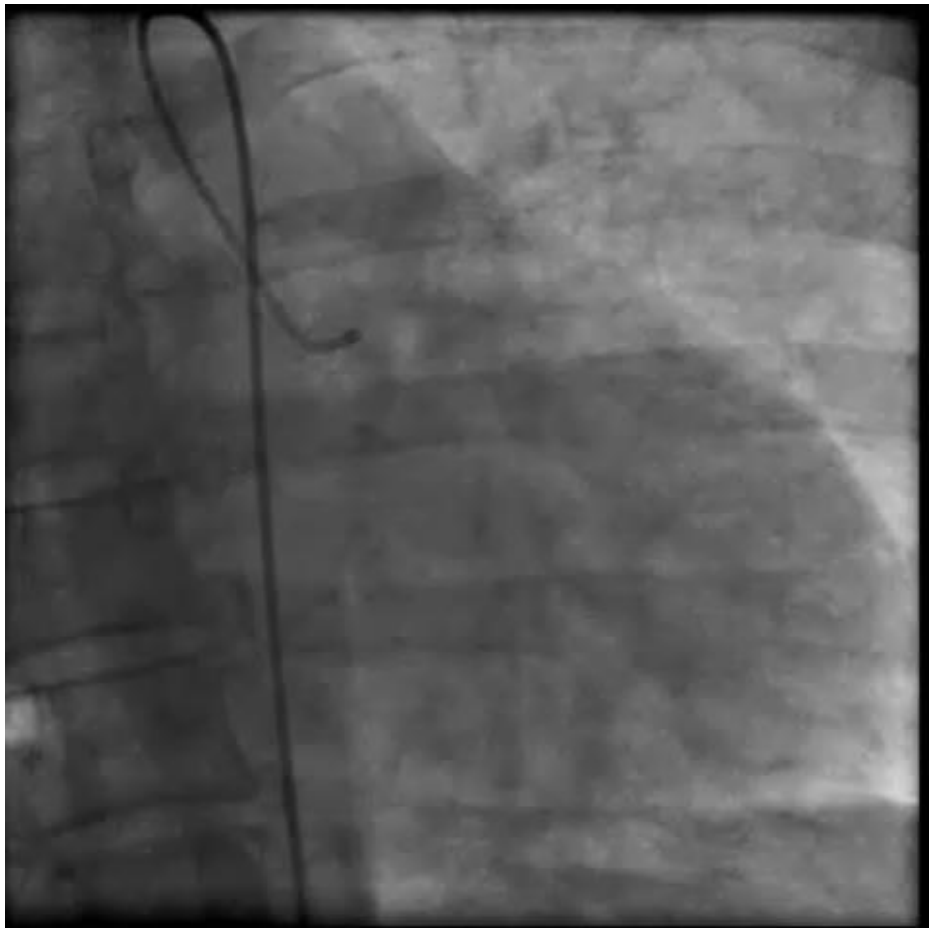
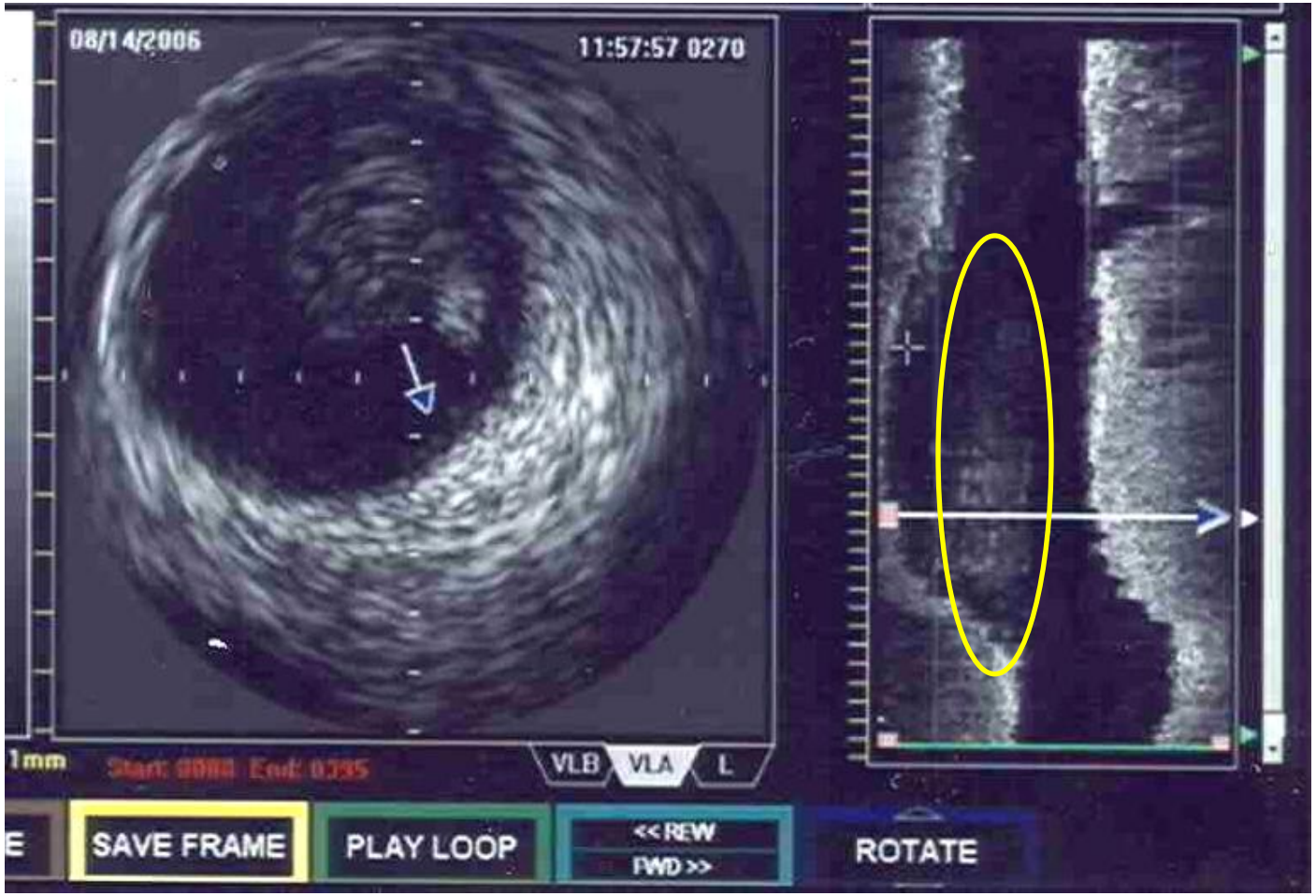
AKS při embolizaci do kmene



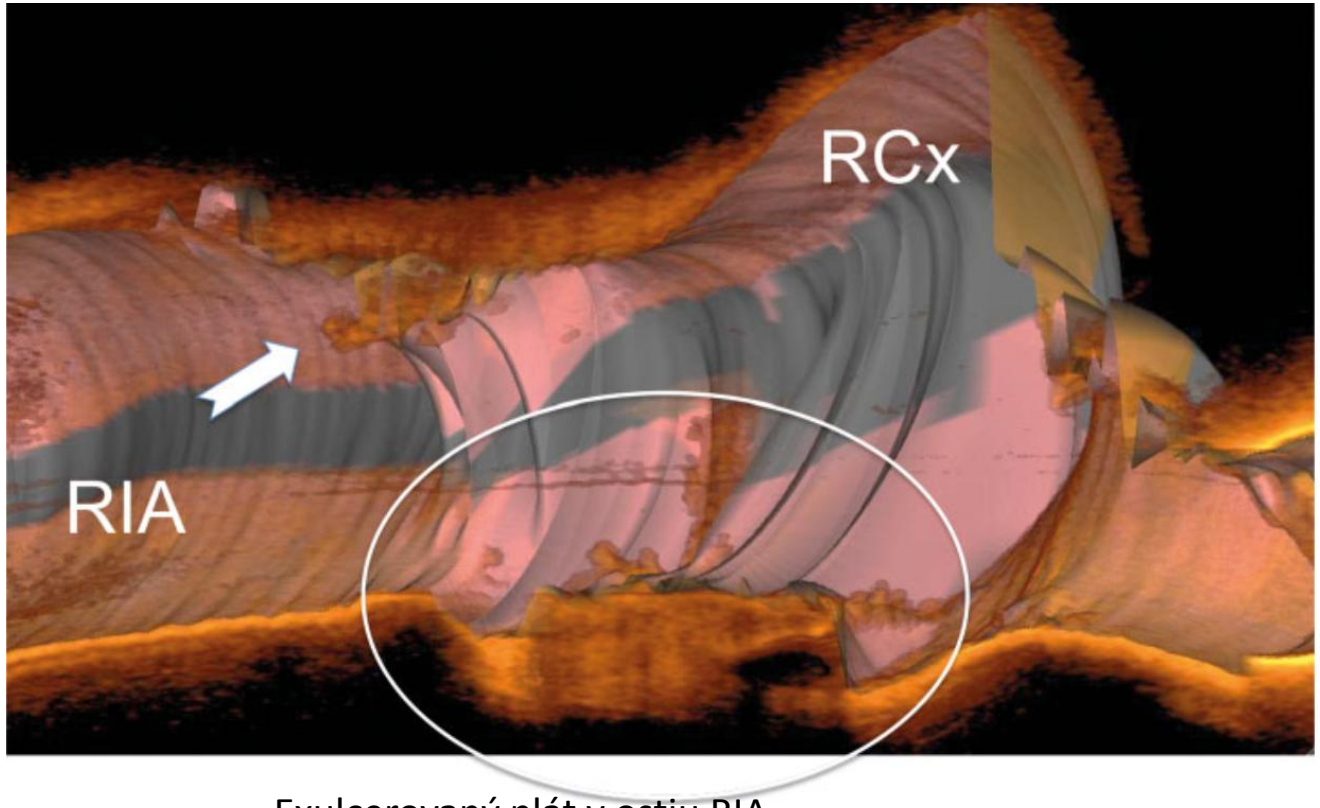
Trombóza na malém plátu



Zdroj: archiv autora

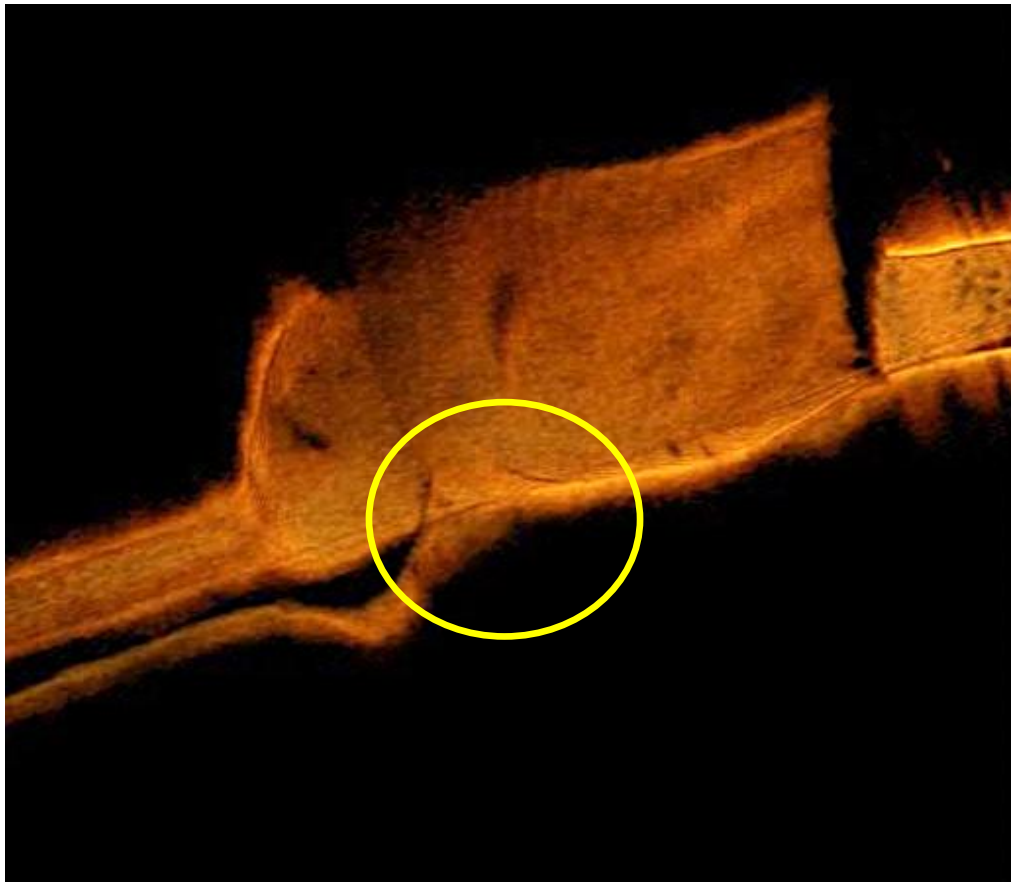
Koronární intervence u STEMI bez implantace stentu

Tomáš Kovárník, David Zemánek, Jan Pudil
II. interní klinika kardiologie a angiologie Všeobecné fakultní nemocnice a 1. lékařské fakulty Univerzity Karlovy v Praze



Exulcerovaný plát v ostiu RIA

Traumatická disekce kmene ACS



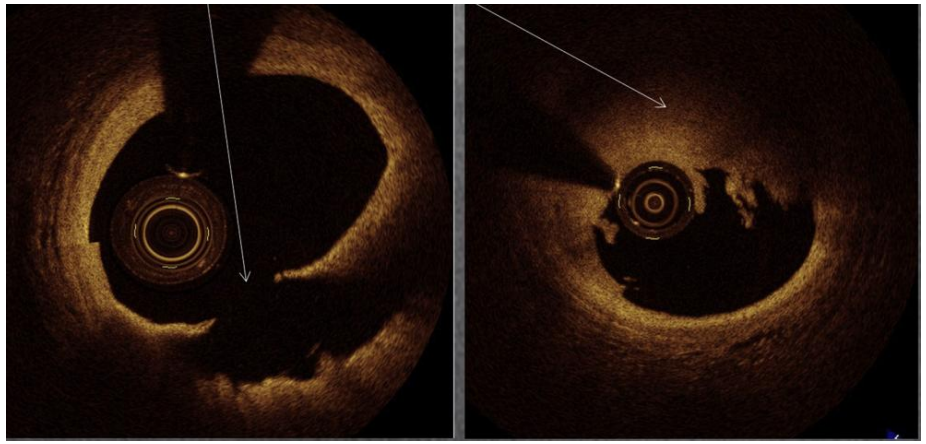
Zdroj: archiv autora

Canadian Journal of Cardiology 30 (2014) 420–427

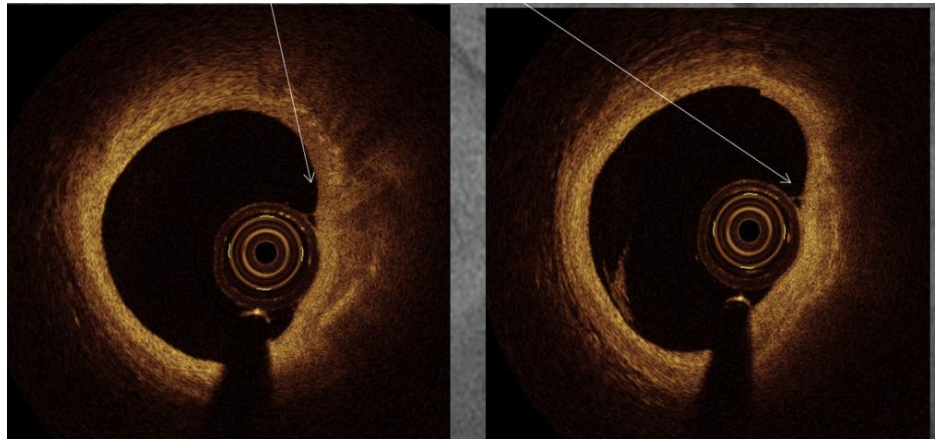
Clinical Research

Optical Coherence Tomography-Guided Primary Percutaneous Coronary Intervention in ST-Segment Elevation Myocardial Infarction Patients: A Pilot Study

Pavel Červinka, MD,[a,b] Radim Špaček, MD,[b] Marian Bystroň, MD,[b] Martin Kvašňák, MD,[b] Andrej Kupec, MD,[b] Michaela Červinková, MD,[a] and Petr Kala, MD[c]

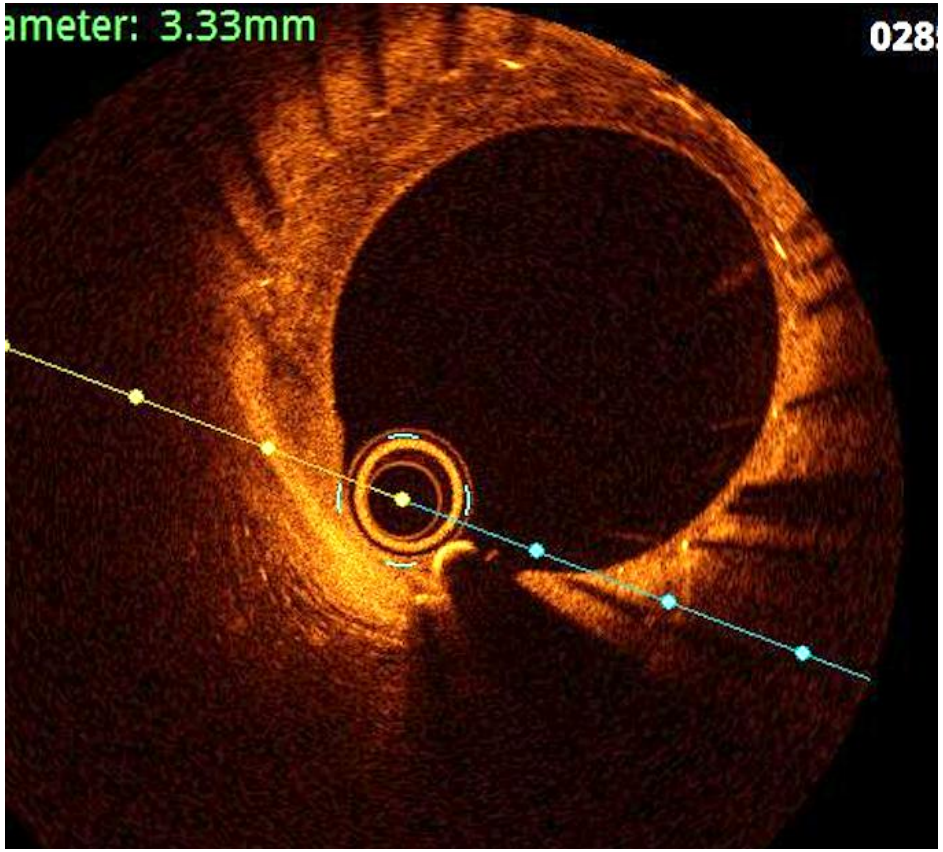


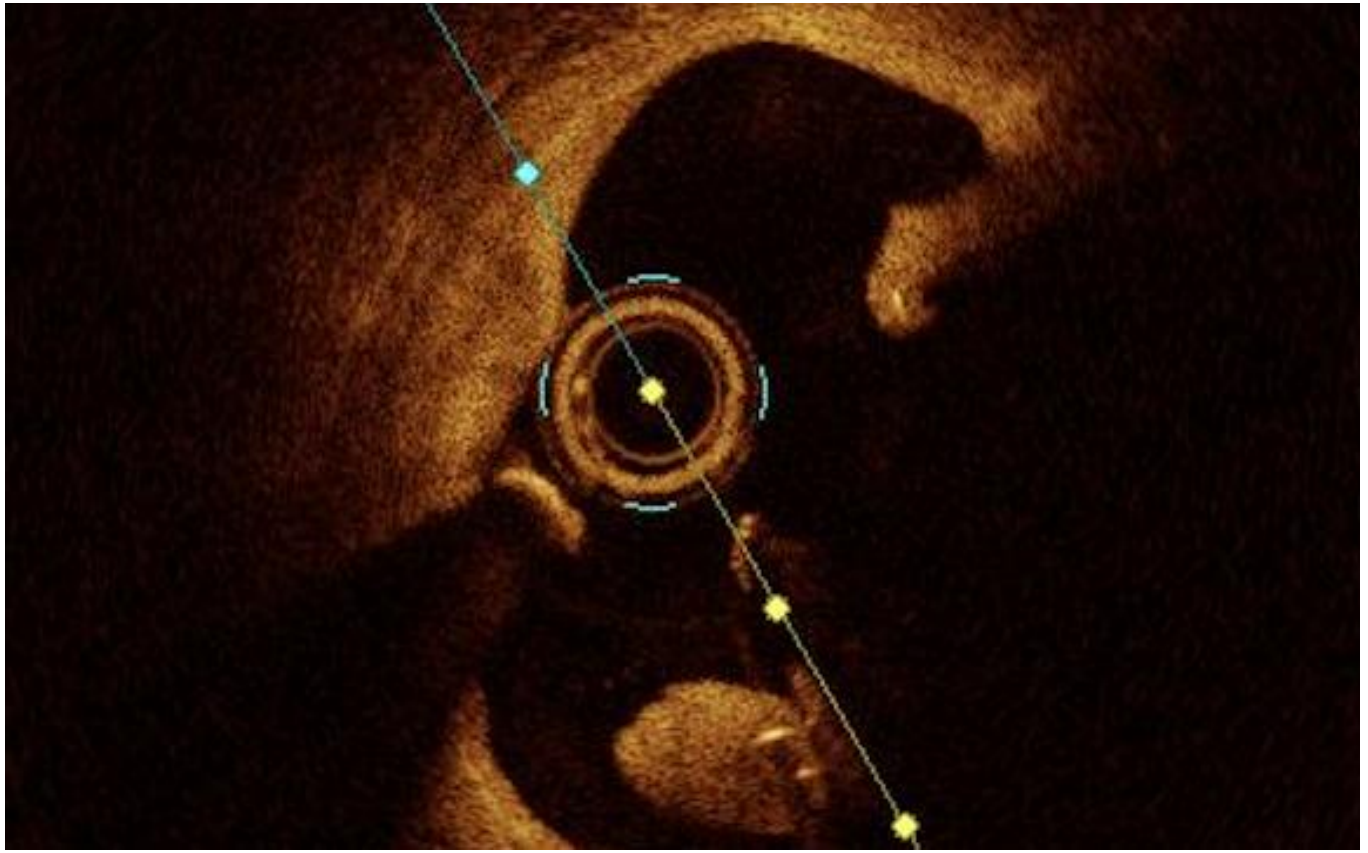
Vstupní OCT při STEMI



Kontrolní OCT za 9 měsíců

Nepříznivé důsledky implantace stentu u mladé nemocné se STEMI

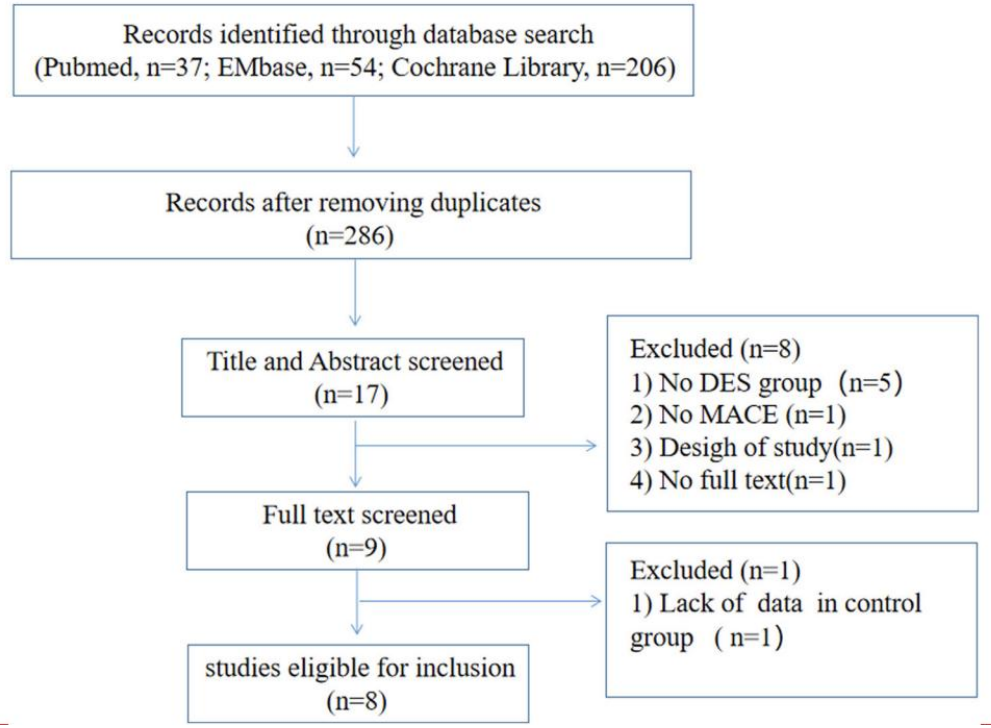




THE ANATOLIAN JOURNAL OF CARDIOLOGY

Official journal of the TURKISH SOCIETY OF CARDIOLOGY

Drug-Coated Balloon vs. Drug-Eluting Stent in Acute Myocardial Infarction: A Systematic Review and Updated Meta-Analysis



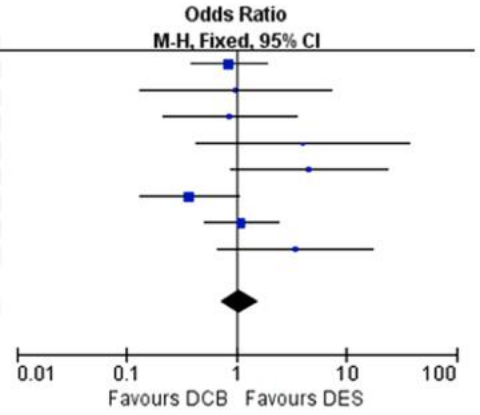
Celkový počet pacientů: 1310

Anatol J Cardiol 2023; 27(8): 444-452

MACE

Study or Subgroup	DCB Events	DCB Total	DES Events	DES Total	Weight	Odds Ratio M-H, Fixed, 95% CI
Fang2018	24	75	15	42	26.9%	0.85 [0.38, 1.88]
Gobić2017	2	38	2	37	3.9%	0.97 [0.13, 7.29]
Hao 2021	4	38	5	42	8.7%	0.87 [0.22, 3.51]
Niehe2022	4	56	1	53	2.0%	4.00 [0.43, 37.01]
Nijhoff2015	7	40	2	45	3.2%	4.56 [0.89, 23.41]
Scheller2019	5	85	16	111	26.8%	0.37 [0.13, 1.06]
Tan 2020	10	56	35	212	24.7%	1.10 [0.51, 2.38]
Zhang 2020	6	180	2	200	3.8%	3.41 [0.68, 17.13]
Total (95% CI)		**568**		**742**	**100.0%**	**1.07 [0.72, 1.57]**
Total events	62		78			

Heterogeneity: Chi² = 10.71, df = 7 (P = 0.15); I² = 35%
Test for overall effect: Z = 0.32 (P = 0.75)

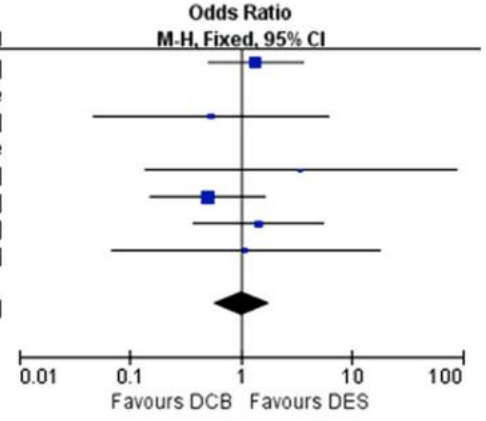


All-cause death

LLL

Study or Subgroup	DCB Events	DCB Total	DES Events	DES Total	Weight	Odds Ratio M-H, Fixed, 95% CI
Fang2018	16	75	7	42	32.5%	1.36 [0.51, 3.62]
Gobić2017	0	38	0	37		Not estimable
Hao 2021	1	38	2	42	8.5%	0.54 [0.05, 6.21]
Niehe2022	0	56	0	53		Not estimable
Nijhoff2015	1	40	0	45	2.1%	3.46 [0.14, 87.26]
Scheller2019	4	85	10	111	38.0%	0.50 [0.15, 1.65]
Tan 2020	3	56	8	212	14.6%	1.44 [0.37, 5.63]
Zhang 2020	1	180	1	200	4.3%	1.11 [0.07, 17.90]
Total (95% CI)		**568**		**742**	**100.0%**	**1.01 [0.56, 1.82]**
Total events	26		28			

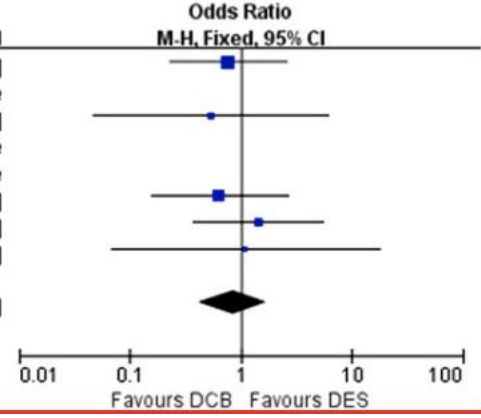
Heterogeneity: Chi² = 2.76, df = 5 (P = 0.74); I² = 0%
Test for overall effect: Z = 0.02 (P = 0.98)



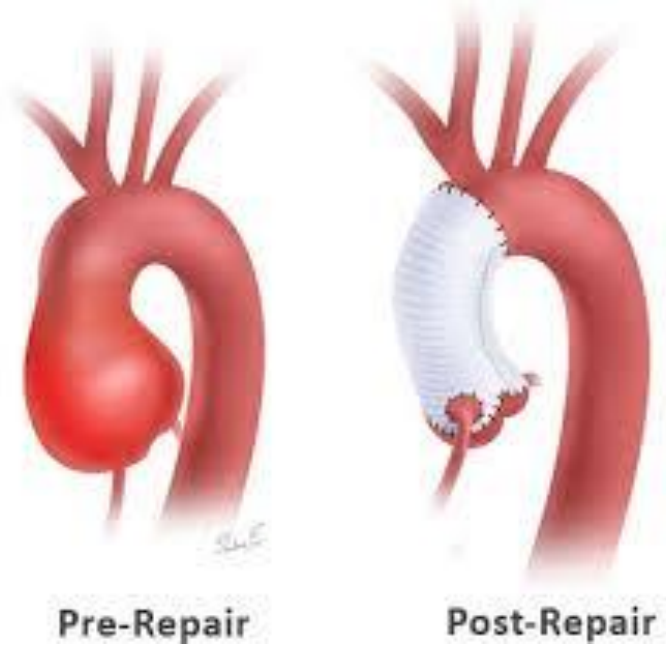
Cardiac death

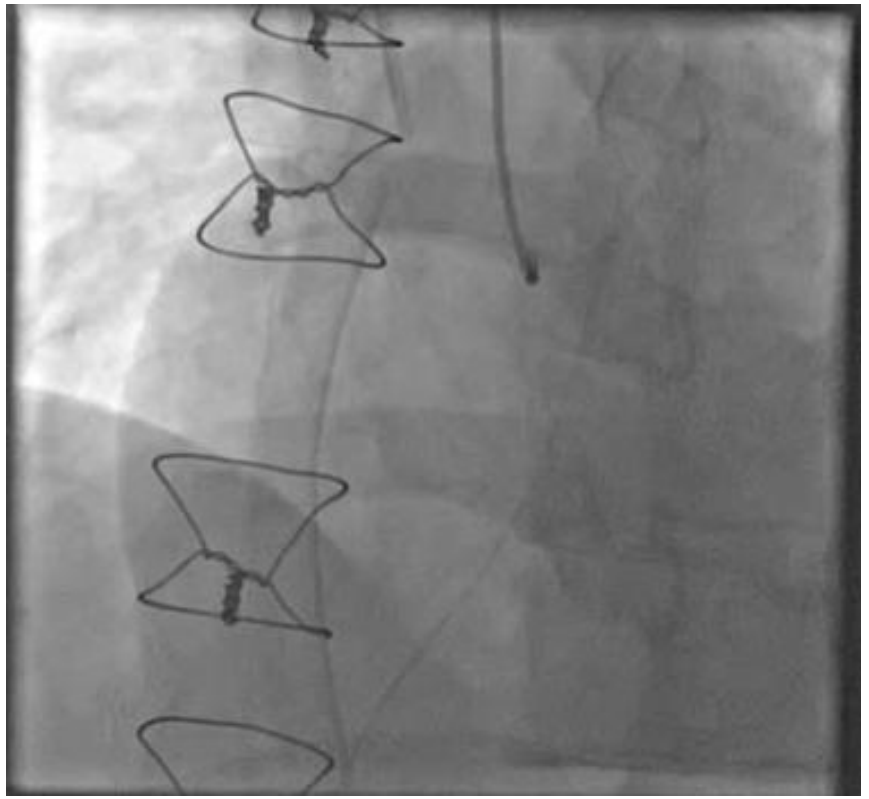
Study or Subgroup	DCB Events	DCB Total	DES Events	DES Total	Weight	Odds Ratio M-H, Fixed, 95% CI
Fang2018	7	75	5	42	34.6%	0.76 [0.23, 2.57]
Gobić2017	0	38	0	37		Not estimable
Hao 2021	1	38	2	42	11.0%	0.54 [0.05, 6.21]
Niehe2022	0	56	0	53		Not estimable
Nijhoff2015	0	40	0	45		Not estimable
Scheller2019	3	85	6	111	29.9%	0.64 [0.16, 2.64]
Tan 2020	3	56	8	212	18.8%	1.44 [0.37, 5.63]
Zhang 2020	1	180	1	200	5.6%	1.11 [0.07, 17.90]
Total (95% CI)		**568**		**742**	**100.0%**	**0.85 [0.42, 1.72]**
Total events	15		22			

Heterogeneity: Chi² = 0.93, df = 4 (P = 0.92); I² = 0%
Test for overall effect: Z = 0.45 (P = 0.65)



Neobvyklá příčina STEMI po plastice aortálního kořene podle Yacouba



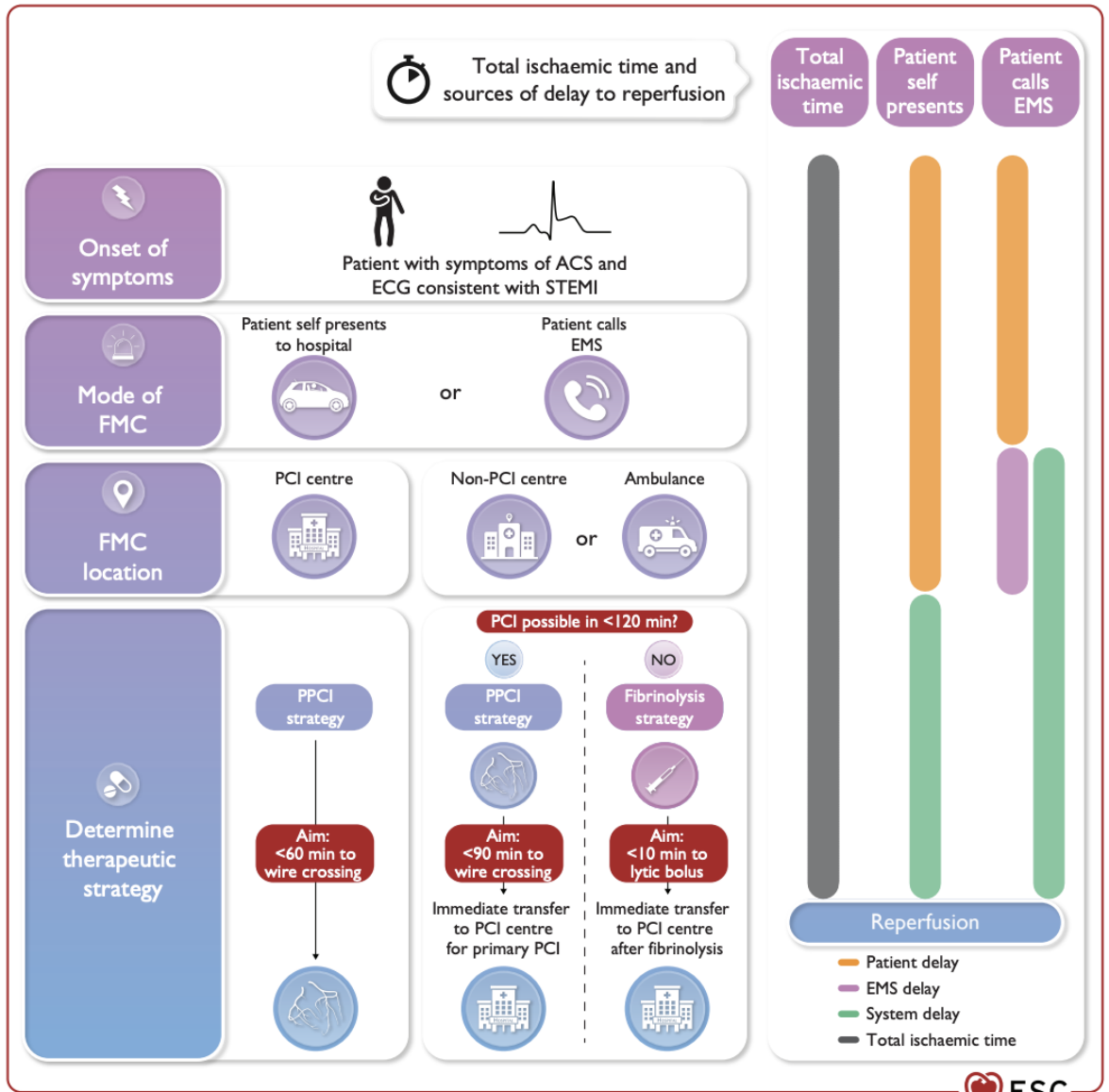


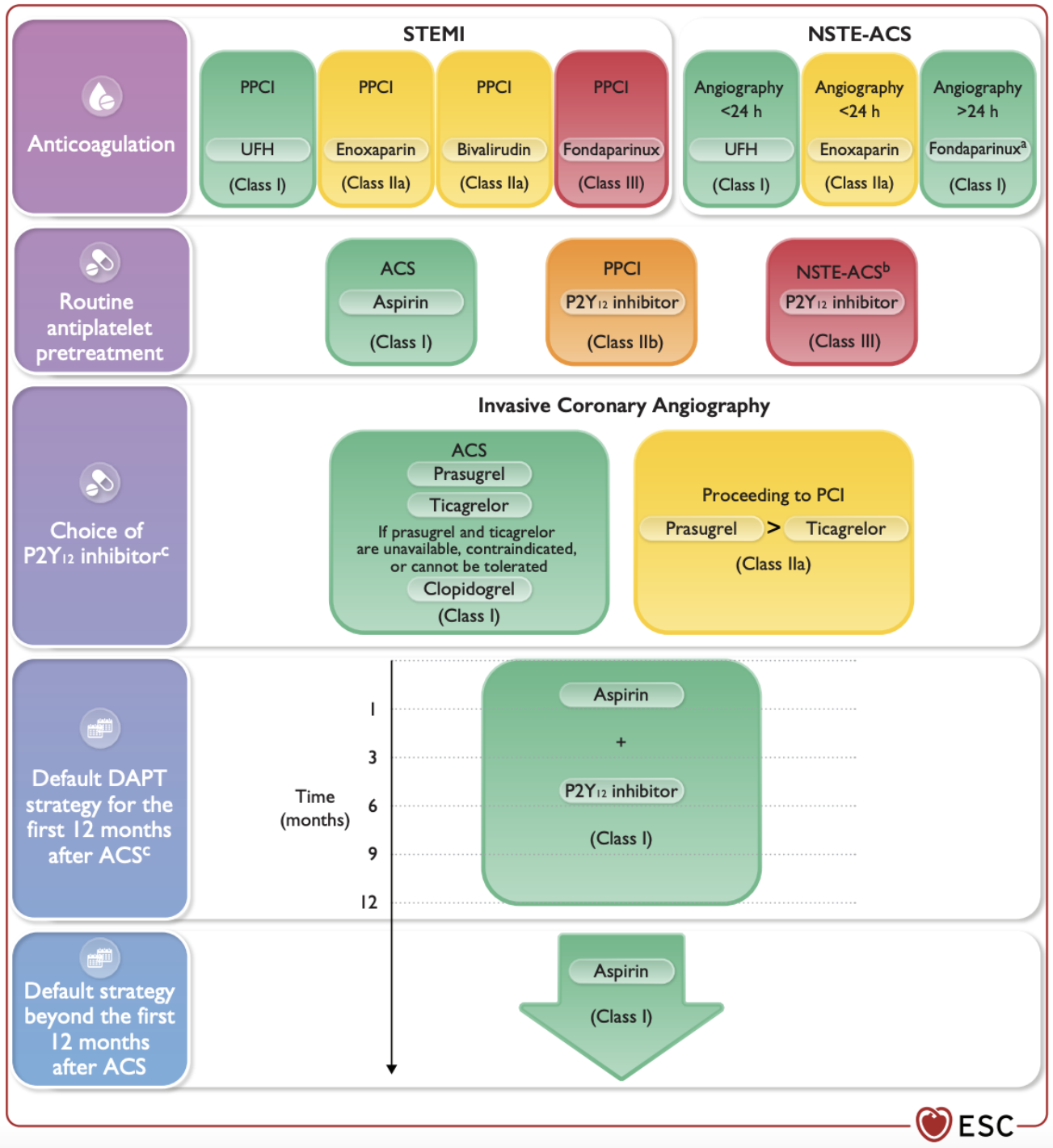
ESC European Society of Cardiology
European Heart Journal (2023) **44**, 3720–3826
https://doi.org/10.1093/eurheartj/ehad191

2023 ESC Guidelines for the managemen of acute coronary syndromes

Recommendation Table 3 — Recommendations for the initial management of patients with acute coronary syndrome

Recommendations	Class[a]	Level[b]
Hypoxia		
Oxygen is recommended in patients with hypoxaemia (SaO_2 <90%).	I	C
Routine oxygen is not recommended in patients without hypoxaemia (SaO_2 >90%).[148,172]	III	A
Symptoms		
Intravenous opioids should be considered to relieve pain.	IIa	C
A mild tranquilizer should be considered in very anxious patients.	IIa	C
Intravenous beta-blockers		
Intravenous beta-blockers (preferably metoprolol) should be considered at the time of presentation in patients undergoing PPCI with no signs of acute heart failure, an SBP >120 mmHg, and no other contraindications.[163–167,169]	IIa	A





In patients with a working diagnosis of STEMI and a time from symptom onset >12 h, a PPCI strategy is recommended in the presence of ongoing symptoms suggestive of ischaemia, haemodynamic instability, or life-threatening arrhythmias.[220]	I	C
A routine PPCI strategy should be considered in STEMI patients presenting late (12–48 h) after symptom onset.[189–191,221]	IIa	B
Routine PCI of an occluded IRA is not recommended in STEMI patients presenting >48 h after symptom onset and without persistent symptoms.[189,192,193]	III	A

Working diagnosis: ACS

Coronary angiography

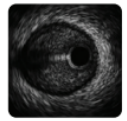
Clear culprit lesion, suitable for PCI

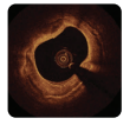
Intravascular imaging to guide PCI (Class IIa)

PCI of culprit lesion

Intravascular imaging

IVUS or OCT





No clear culprit lesion

Intravascular imaging (preferably OCT) in patients with ambiguous culprit lesions (Class IIb)

Treat as per imaging findings

Consider further investigations as required

Potential ambiguous angiographic findings

Multivessel disease

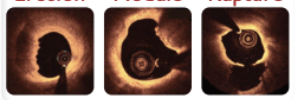
Hazy lesion/calcification

Tortuosity/eccentricity

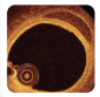
Potential intravascular imaging findings

Coronary plaque pathology

Erosion Nodule Rupture



SCAD



No lesion

Potential further investigations

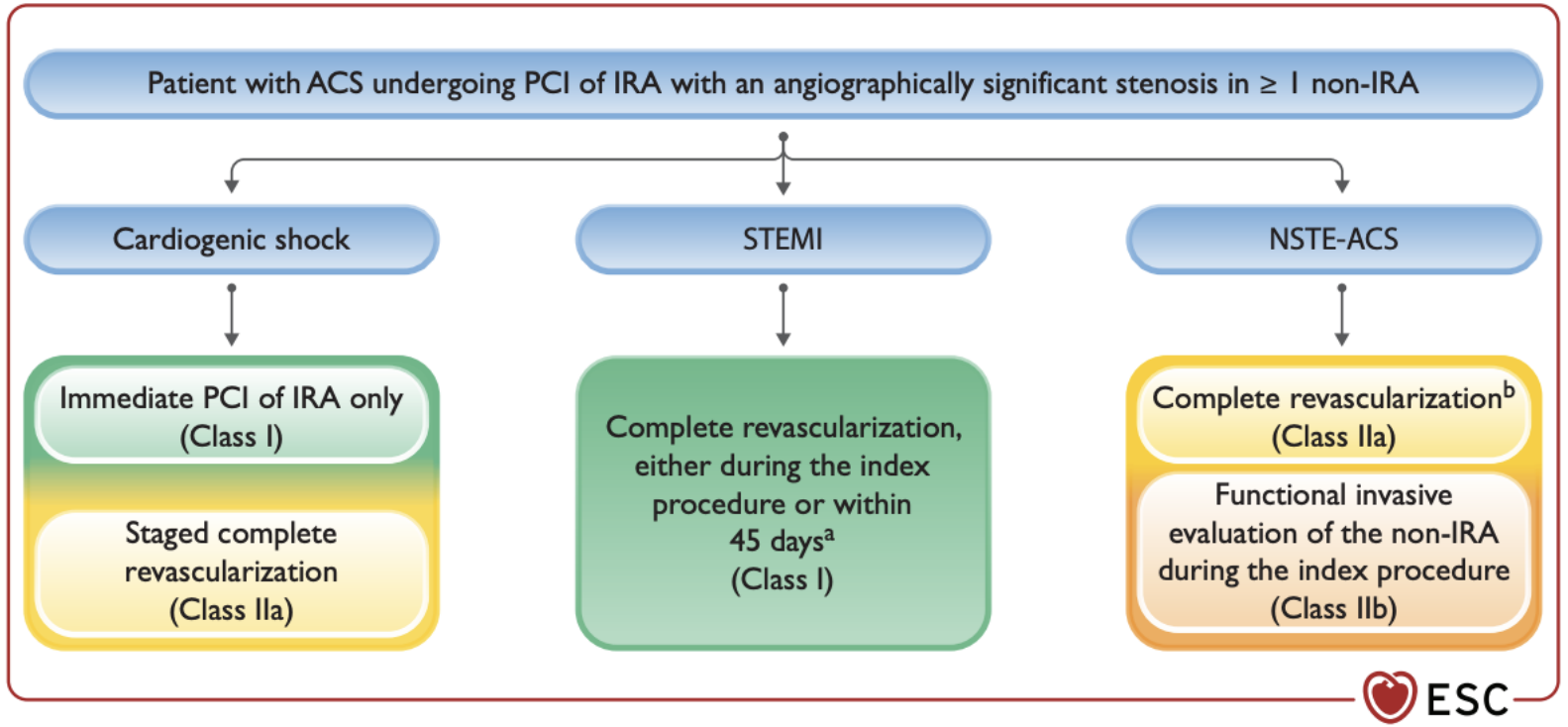
Left ventriculography

Echocardiography

Cardiac MRI

ESC

Pacienti s mnohočetným koronárním postižením



The NEW ENGLAND JOURNAL of MEDICINE

MULTISTARS AMI I ORIGINAL ARTICLE

Timing of Complete Revascularization with Multivessel PCI for Myocardial Infarction

B.E. Stähli. F. Varbella. A. Linke. B. Schwarz. S.B. Felix. M. Seiffert. R. Kesterke.

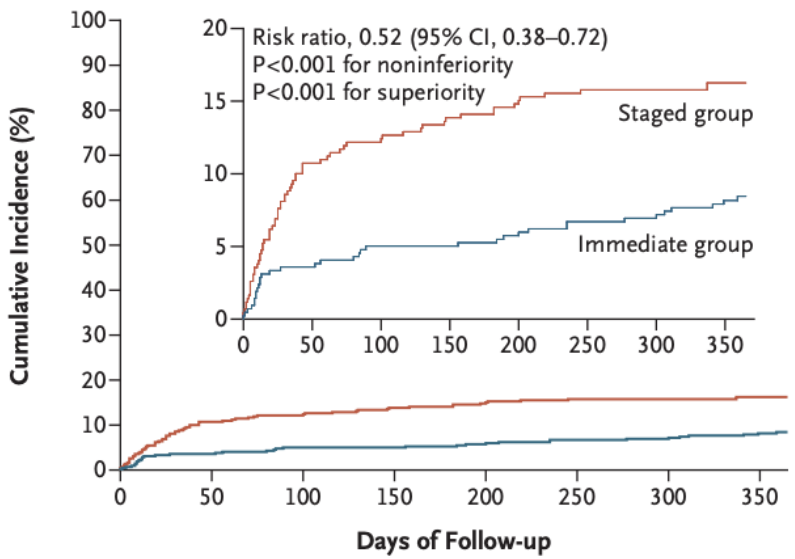


Table 3. Primary and Secondary End Points.*

End Point	Immediate Group (N=418)	Staged Group (N=422)	Treatment Effect (95% CI)
Primary end point at 1 yr			
Death from any cause, nonfatal myocardial infarction, stroke, unplanned ischemia-driven revascularization, or hospitalization for heart failure — no. (%)	35 (8.5)	68 (16.3)	0.52 (0.38–0.72)†
Secondary end points at 1 yr‡			
Death from any cause — no. (%)	12 (2.9)	11 (2.6)	1.10 (0.48–2.48)§
Nonfatal myocardial infarction — no. (%)	8 (2.0)	22 (5.3)	0.36 (0.16–0.80)§
Stroke — no. (%)	5 (1.2)	7 (1.7)	0.72 (0.23–2.26)§
Unplanned ischemia-driven revascularization — no. (%)	17 (4.1)	39 (9.3)	0.42 (0.24–0.74)§
Hospitalization for heart failure — no. (%)	5 (1.2)	6 (1.4)	0.84 (0.26–2.74)§
Death from any cause or nonfatal myocardial infarction — no. (%)	19 (4.6)	32 (7.7)	0.58 (0.33–1.03)§
Cardiac death — no. (%)	5 (1.2)	6 (1.4)	0.84 (0.26–2.74)§
Vascular death — no. (%)	1 (0.2)	0 (0.0)	—
Noncardiovascular death — no. (%)	6 (1.4)	5 (1.2)	1.21 (0.37–3.95)§
Cardiac death or nonfatal myocardial infarction — no. (%)	12 (2.9)	27 (6.5)	0.44 (0.22–0.87)§
Target-vessel revascularization — no. (%)	10 (2.4)	12 (2.9)	0.83 (0.36–1.93)§
Target-lesion revascularization — no. (%)	9 (2.2)	12 (2.9)	0.75 (0.32–1.78)§
Stent thrombosis — no. (%)	5 (1.2)	6 (1.4)	0.84 (0.26–2.75)§
Acute renal insufficiency or renal-replacement therapy — no. (%)	15 (3.6)	13 (2.9)	1.26 (0.59–2.70)§
Major bleeding — no. (%)¶	13 (3.1)	21 (4.8)	0.65 (0.32–1.31)§
Procedural success — no./total no. (%)	347/383 (90.6)	308/338 (91.1)	0.94 (0.56–1.56)‖
Median EQ-5D-5L index score (IQR)**	1.0 (0.9–1.0)	1.0 (0.9–1.0)	1.02 (0.91–1.12)††

COMPLETE 5.4%

COMPLETE 7.9%

TABLE S5. SUBTYPES OF MYOCARDIAL INFARCTION.

	Immediate group	Staged group
Type 1	**5**	**6**
After the index procedure	5	5
After the staged procedure	-	1
Type 2	**0**	**2**
After the index procedure	0	1
After the staged procedure	-	1
Type 3	-	-
Type 4a	**0**	**12**
After the index procedure	0	0
After the staged procedure	-	10
After an unplanned ischemia-driven procedure		2
Type 4b	**3**	**2**
After the index procedure	3	1
After the staged procedure	-	1
Type 5	-	-
STEMI/NSTEMI		
STEMI	3	4
NSTEMI	5	17
Unclear	0	1

Doporučení pro srdeční podpory u ACS

In patients with ACS and severe/refractory CS, short-term mechanical circulatory support may be considered.[402]	IIb	C
The routine use of an IABP in ACS patients with CS and without mechanical complications is not recommended.[399,405–407]	III	B

Parachute use to prevent death and major trauma when jumping from aircraft: randomized controlled trial

Robert W Yeh,[1] Linda R Valsdottir,[1] Michael W Yeh,[2] Changyu Shen,[1] Daniel B Kramer,[1] Jordan B Strom,[1] Eric A Secemsky,[1] Joanne L Healy,[1] Robert M Domeier,[3] Dhruv S Kazi,[1] Brahmajee K Nallamothu[4] On behalf of the PARACHUTE Investigators

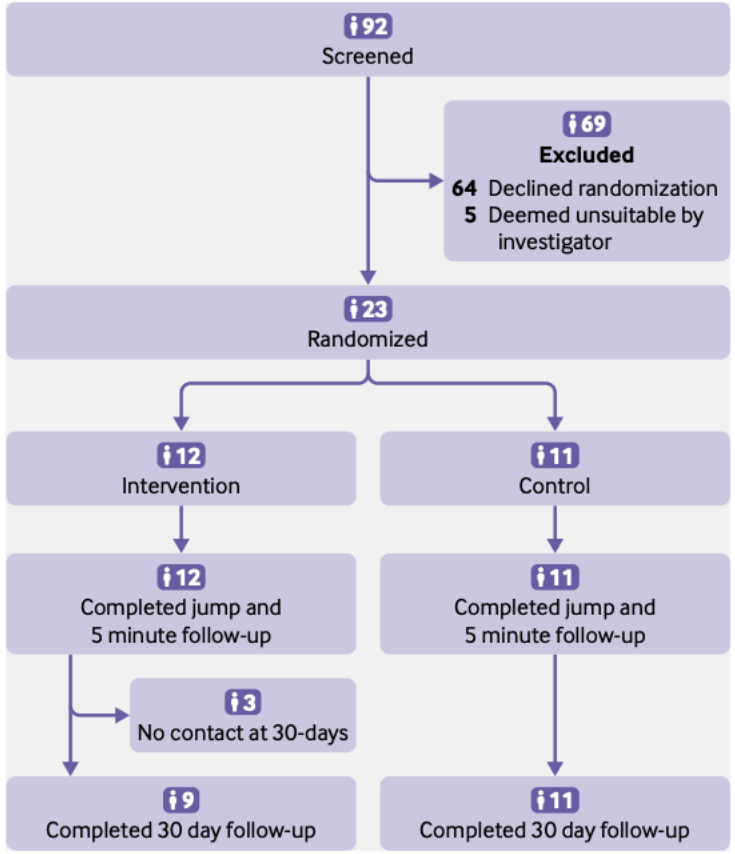
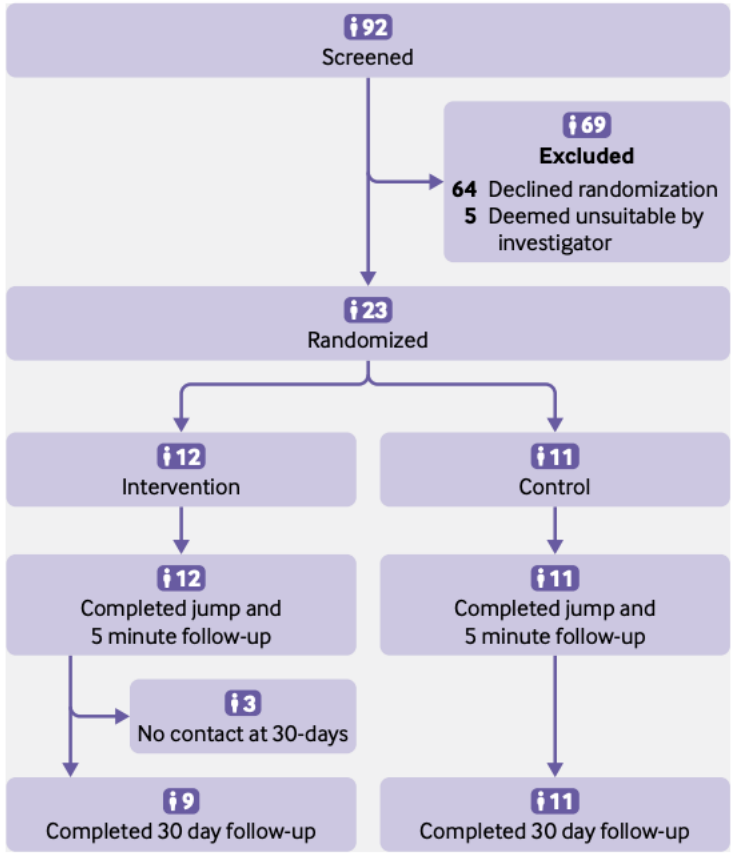


Table 3 Event rates for primary and secondary endpoints. Values are numbers (percentages) unless stated otherwise

Endpoint	Parachute	Control	Mean difference (95% CI)	P value
On impact				
Death or major traumatic injury	0 (0)	0 (0)	0	>0.9
Mean (SD) Injury Severity Score	0 (0)	0 (0)	0	>0.9
30 days after impact				
Death or major traumatic injury	0 (0)	0 (0)	0	>0.9
Mean (SD) Injury Severity Score	0 (0)	0 (0)	0	>0.9
Health status				
Mean (SD) Short Form Health Survey score	43.9 (1.8)	44.0 (2.4)	0.1 (−2.0 to 2.2)	0.9
Mean (SD) physical health subscore	19.6 (0.7)	19.7 (0.5)	0.04 (−0.5 to 0.6)	0.9
Mean (SD) mental health subscore	24.3 (1.3)	24.3 (2.1)	0.08 (−1.6 to 1.8)	0.9

Parachute use to prevent death and major trauma when jumping from aircraft: randomized controlled trial

Robert W Yeh,[1] Linda R Valsdottir,[1] Michael W Yeh,[2] Changyu Shen,[1] Daniel B Kramer,[1] Jordan B Strom,[1] Eric A Secemsky,[1] Joanne L Healy,[1] Robert M Domeier,[3] Dhruv S Kazi,[1] Brahmajee K Nallamothu[4] On behalf of the PARACHUTE Investigators



CONCLUSIONS

Parachute use did not reduce death or major traumatic injury when jumping from aircraft in the first randomized evaluation of this intervention. However, the trial was only able to enroll participants on small stationary aircraft on the ground, suggesting cautious extrapolation to high altitude jumps. When beliefs

Table 3 Event rates for primary and secondary endpoints. Values are numbers (percentages) unless stated otherwise

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30 days after impact				
Death or major traumatic injury	0 (0)	0 (0)	0	>0.9
Mean (SD) Injury Severity Score	0 (0)	0 (0)	0	>0.9
Health status				
Mean (SD) Short Form Health Survey score	43.9 (1.8)	44.0 (2.4)	0.1 (−2.0 to 2.2)	0.9
Mean (SD) physical health subscore	19.6 (0.7)	19.7 (0.5)	0.04 (−0.5 to 0.6)	0.9
Mean (SD) mental health subscore	24.3 (1.3)	24.3 (2.1)	0.08 (−1.6 to 1.8)	0.9

Péče po STEMI

- Kardiaci mají dvakrát vyšší výskyt deprese a anxiózně-depresivního syndromu
- Deprese a anxieta jsou spojeny s vyšším výskytem MACE po ACS
- Psychologická intervence je v kategorii I a IIA

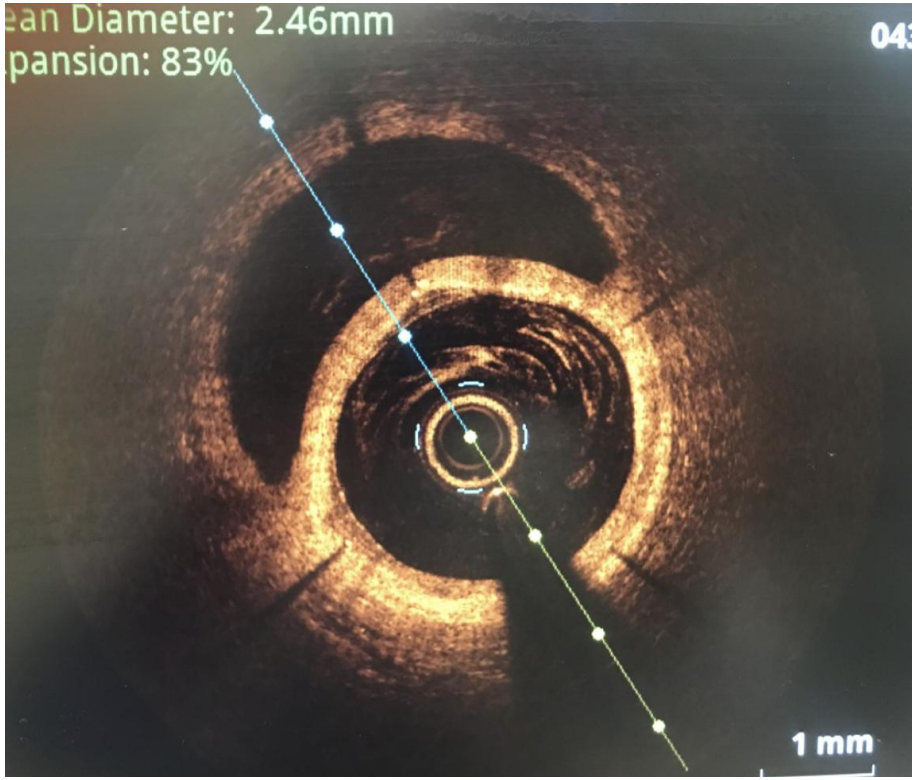
Závěr

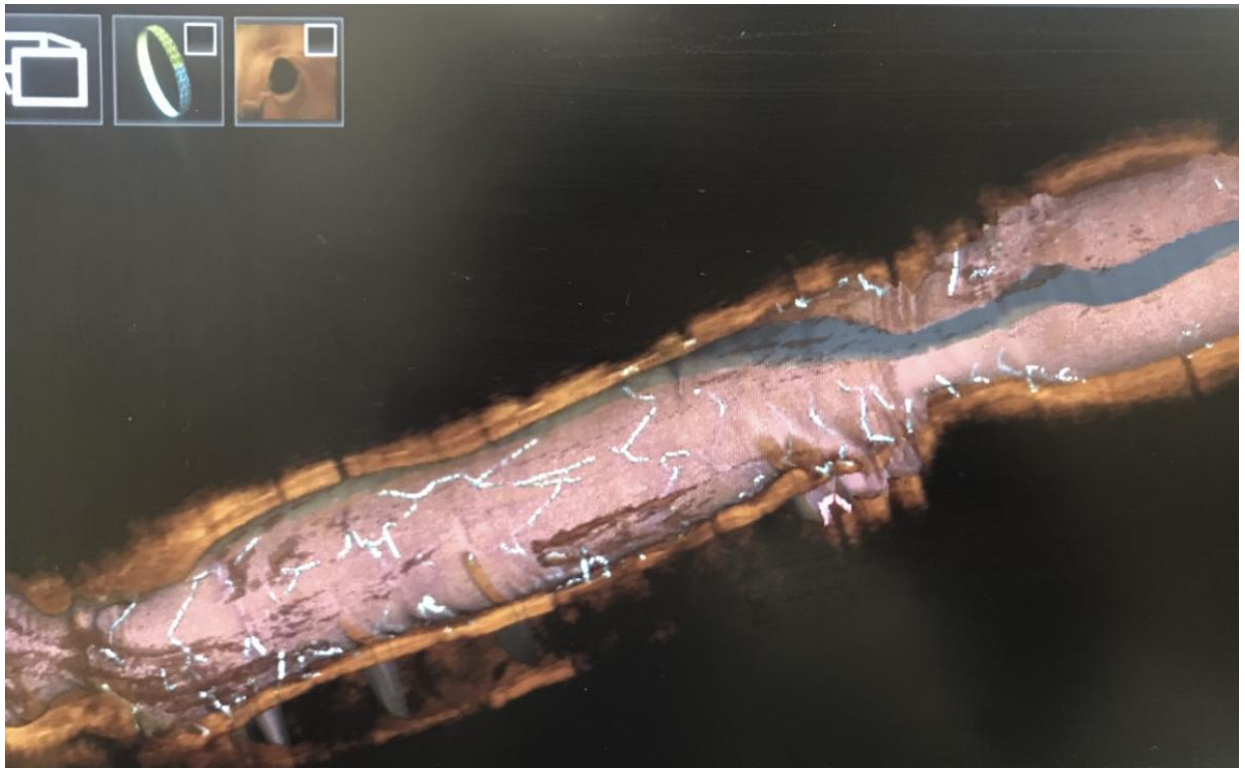
- Časná reperfúze je klíčovým faktorem dobrého výsledku u STEMI
- Významné „non-culprit“ léze mají být intervenovány (preferenčně ve druhé době)
- Zobrazovací metody vedou k lepším výsledkům u komplexních PCI a lépe než angiografie identifikují mechanismus vzniku STEMI
- Aspirace trombů není obsoletní technika
- Implantace stentu není vždy nutností
- Časné použití srdečních podpor vede k hemodynamické stabilizaci pacienta
- Psychoterapeutická intervence by měla být součásti sekundární prevence po STEMI

Časná dimise (< 72 hodin)

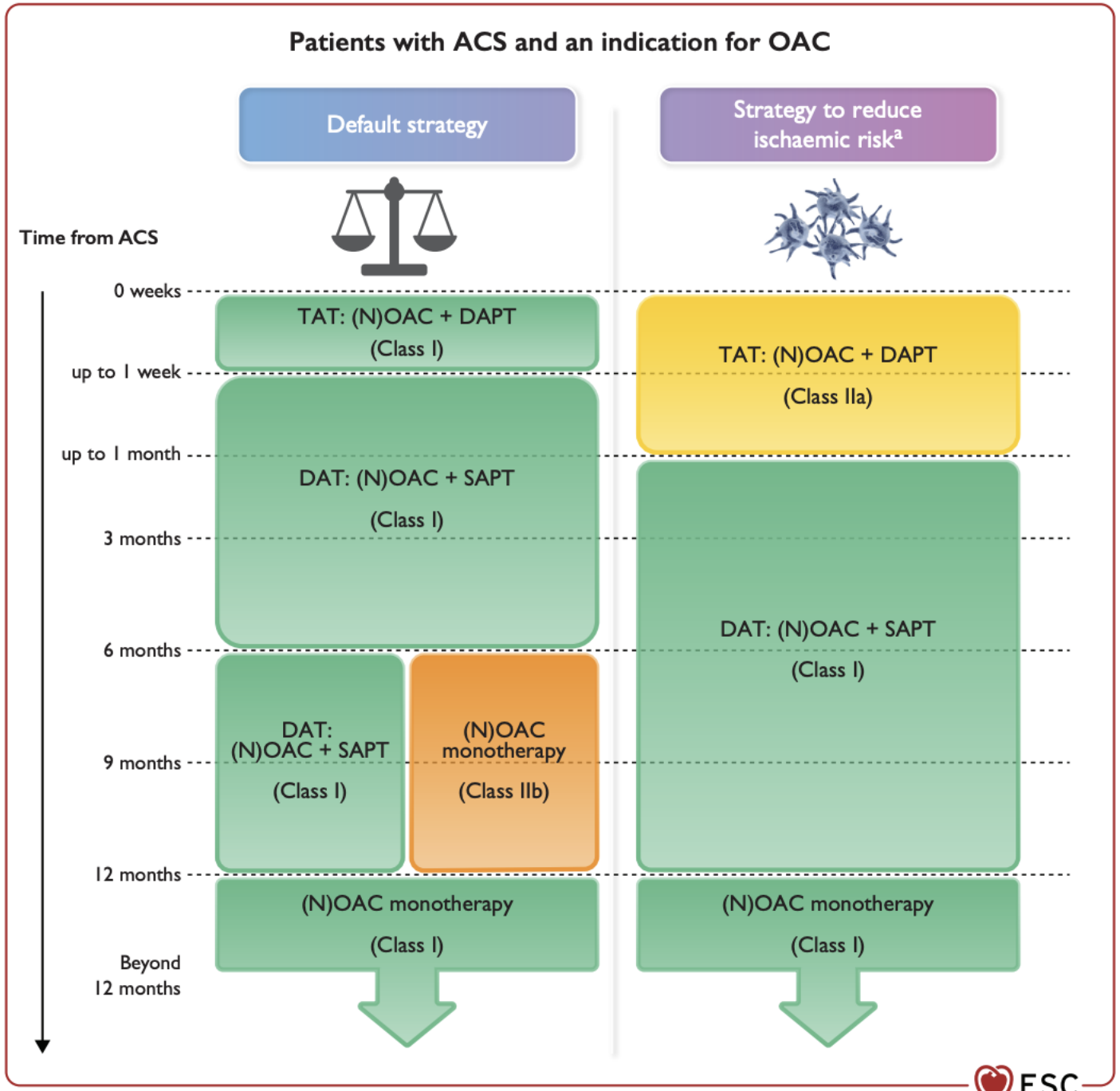
- věk < 70 let
- vyřešený koronární nález / nerizikový reziduální nález
- EF LK > 45%
- nepřítomnost arytmií

OCT u SCAD

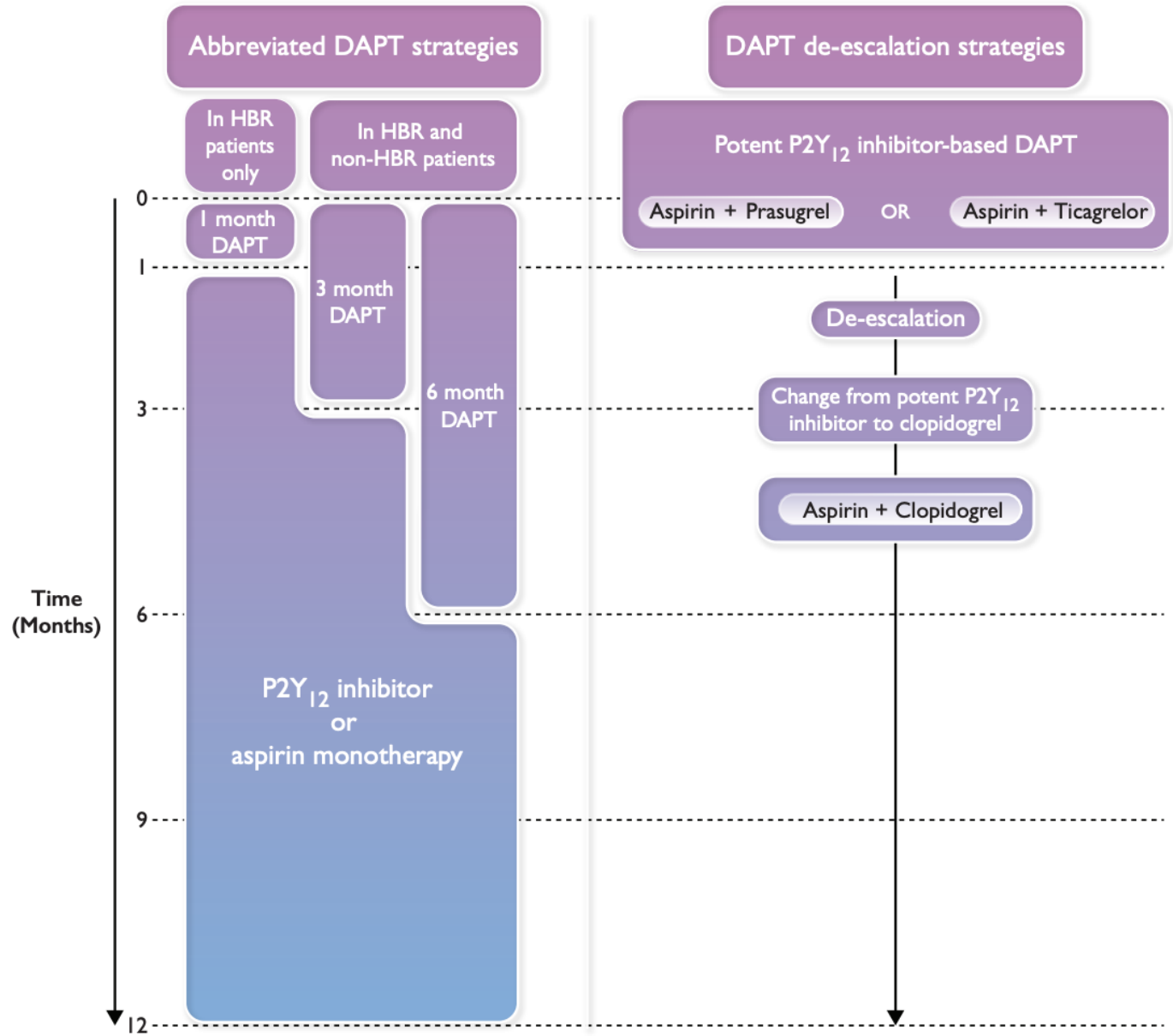




Zdroj: archiv autora


Patients with ACS and an indication for OAC
Default strategy
Strategy to reduce ischaemic risk[a]
Time from ACS
0 weeks
up to 1 week
up to 1 month
3 months
6 months
9 months
12 months
Beyond 12 months
TAT: (N)OAC + DAPT (Class I)
DAT: (N)OAC + SAPT (Class I)
DAT: (N)OAC + SAPT (Class I)
(N)OAC monotherapy (Class IIb)
(N)OAC monotherapy (Class I)
TAT: (N)OAC + DAPT (Class IIa)
DAT: (N)OAC + SAPT (Class I)
(N)OAC monotherapy (Class I)
ESC

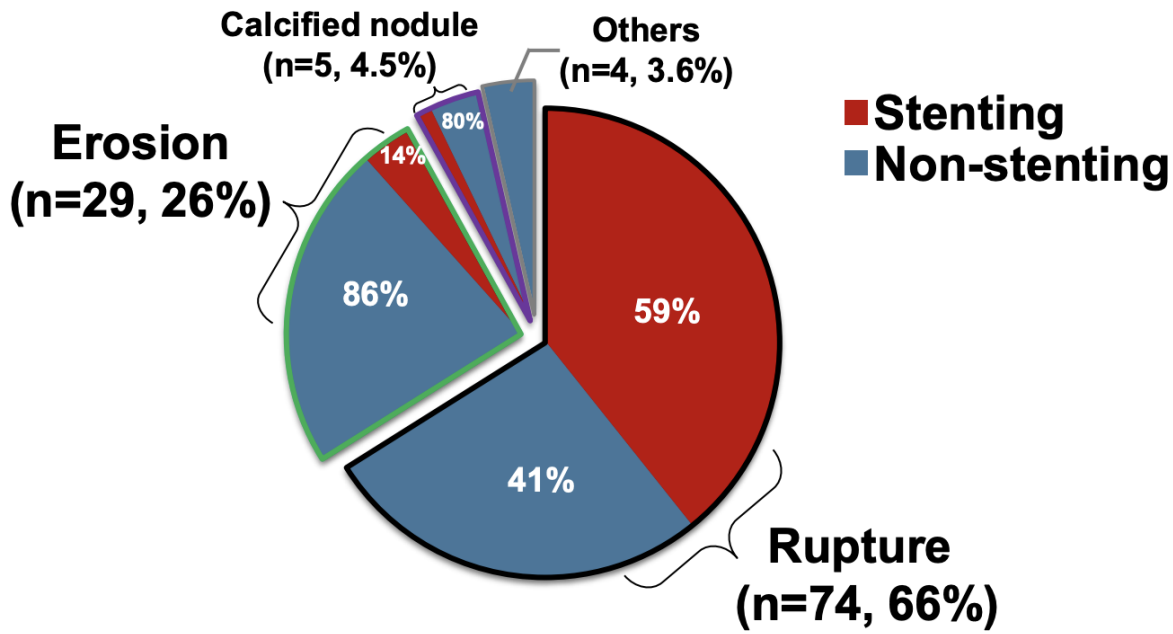
Antiplatelet strategies to reduce bleeding risk in the first 12 months after ACS



ESC

EROSION III: A Randomized Trial of OCT-Guided Intervention in STEMI with Early Infarct Artery Patency

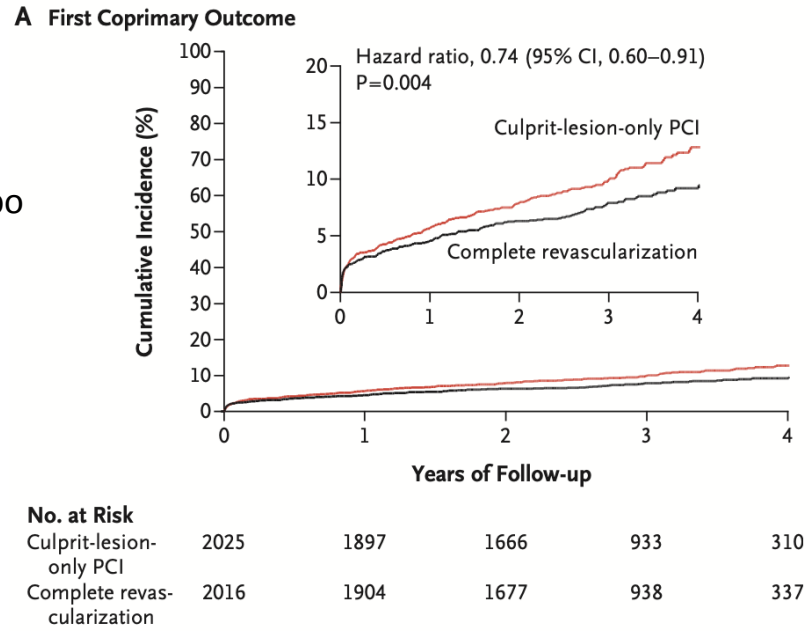
OCT features in stented vs. non-stented subgroup

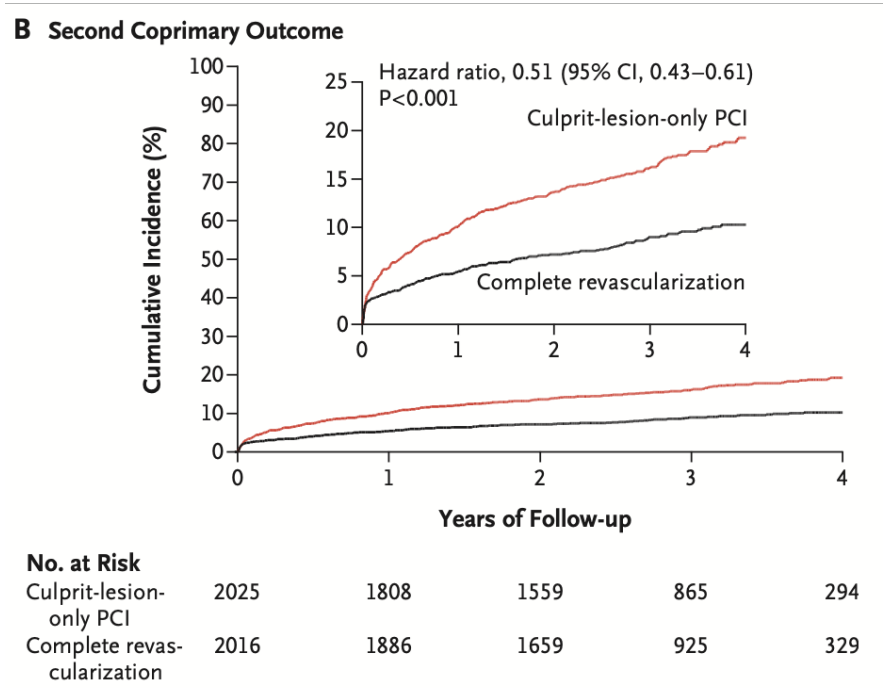


OCT group (n=112)

Studie COMPLETE

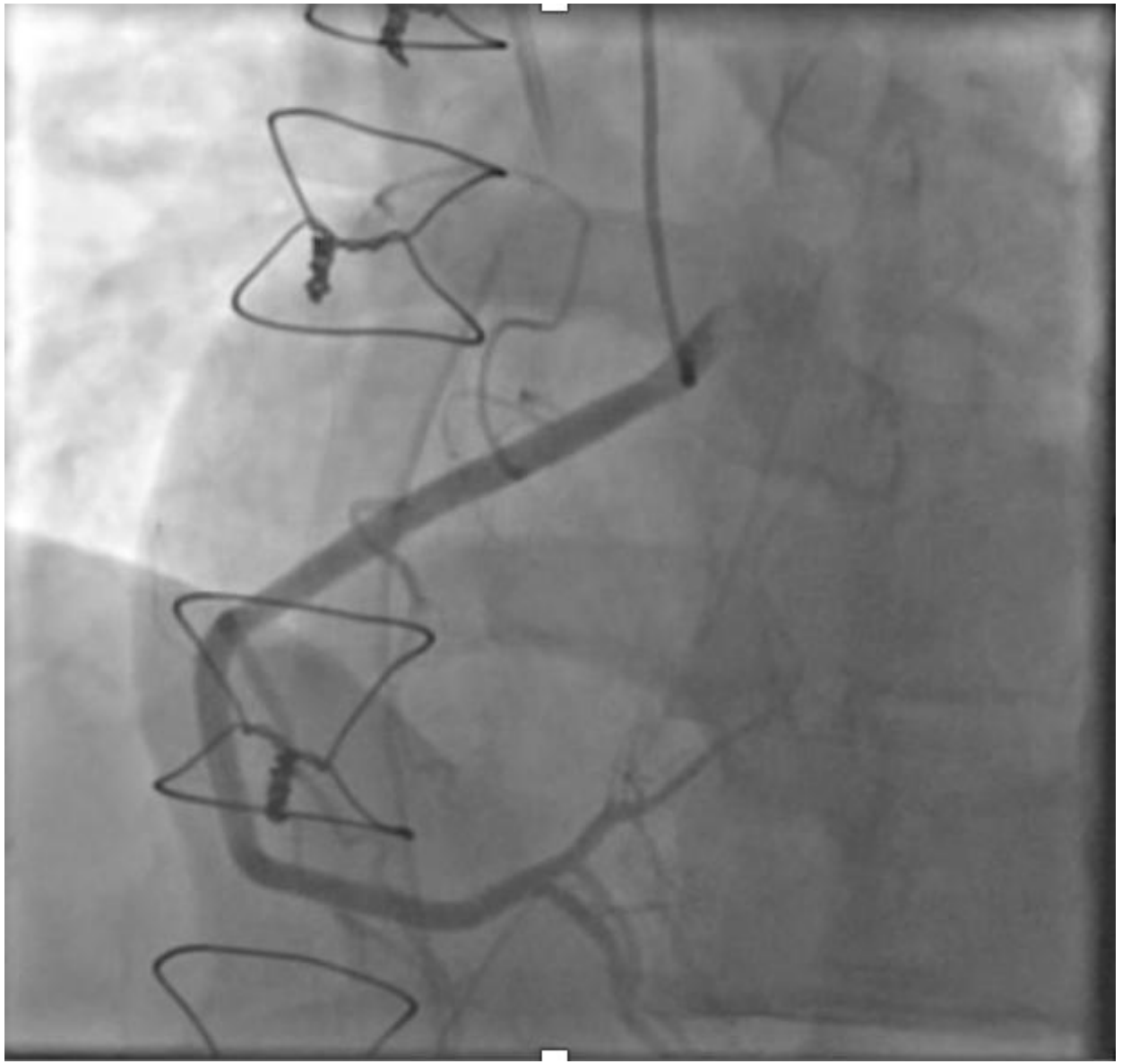
CV mortalita a/nebo IM

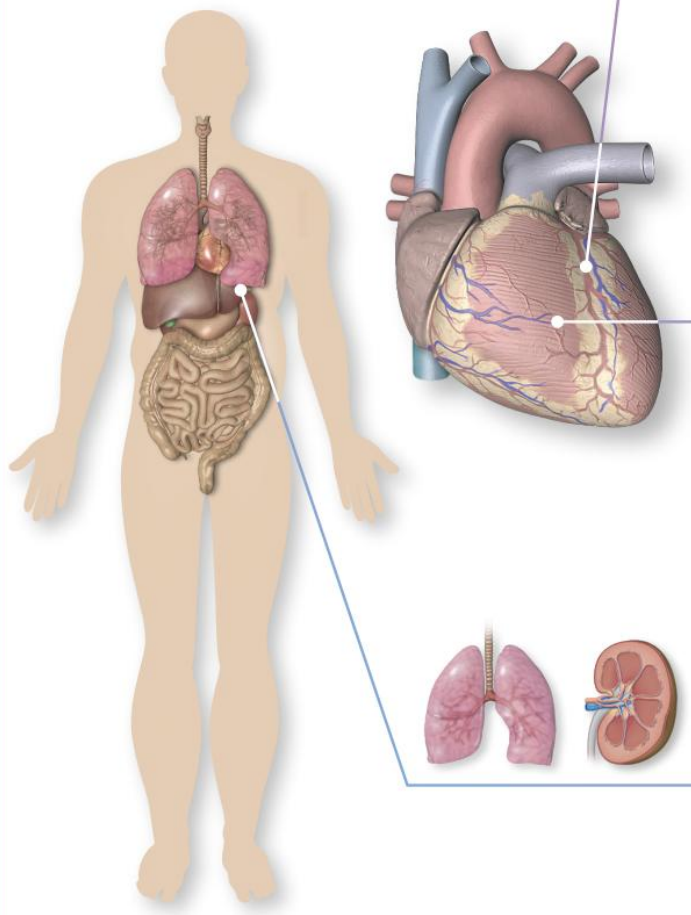




CV mortalita a/nebo IM a/nebo urgentní revaskularizace

N Engl J Med 2019;381:1411-21.





Coronary causes

- Coronary embolism
- Coronary microvascular dysfunction
- Coronary spasm
- Coronary thrombosis
- Myocardial bridging
- Plaque rupture/erosion
- Spontaneous coronary artery dissection

Non-coronary, cardiac causes

- Cardiac trauma
- Cardiomyopathy
- Cardiotoxins
- Myocarditis
- Strenuous exercise
- Takotsubo cardiomyopathy
- Transplant rejection

Non-cardiac causes

- Acute respiratory distress syndrome
- Allergic/hypersensitivity reactions
- End-stage renal failure
- Inflammation
- Pulmonary embolism
- Sepsis
- Stroke

ESC